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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,743	07/30/2003	Satoru Wakuta	116282	8916
25944	7590	07/06/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			FISCHMANN, BRYAN R	
			ART UNIT	PAPER NUMBER
			3618	

DATE MAILED: 07/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/629,743	WAKUTA ET AL.	
	Examiner	Art Unit	
	Bryan Fischmann	3618	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 16-19 is/are rejected.
- 7) ☒ Claim(s) 14 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>various</u> : <b>(4 TOTAL)</b>  | 6) <input type="checkbox"/> Other: _____                                    |

***Acknowledgments***

1. The Election filed 4-26-2005 has been entered.

***Election/Restriction***

2. A restriction requirement between 5 species was made in a restriction requirement dated 3-28-2005. In response, the Applicant elected the third species (Figures 3 and 7). The election was made with traverse. The Applicant identified all claims as being "readable" on the elected species.
3. Since all claims are "readable" on the elected species, the Examiner will agree to withdraw the restriction requirement, with the caveat that if the Applicant submits new independent claims drawn to one, or more non-elected species, the restriction requirement will likely be reinstated. Newly added dependant claims drawn to each species, but which depend on an allowable generic claim are not necessarily objectionable to the Examiner, unless there is disagreement as to whether the generic claim is allowable.

***Specification***

4. The abstract of the disclosure is objected to because of the following:
  - A) The recitation of "an output of an internal combustion engine is transmitted to an output shaft by controlling a control motor to change a speed without speed steps".This recitation is objected to for reasons set forth in the "Specification Objections" portion of this Office Action.

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5. The specification is objected to because of the following:

A) The following recited phrases are unclear, awkwardly worded, and/or grammatically incorrect:

1) Paragraph 0010 recites "...the first motor 7 is controlled for step-less adjustment in the output torque and rotation which goes to the output axis 16...".

Paragraph 0011 then recites "note that the second motor 10 uses electrical energy generated in the first motor 7, and additionally, when the generated energy is insufficient for the required energy, it uses battery energy stored in the first motor, which exclusively functions as a generator...".

The above recitations are considered unclear and contradictory due to the following:

a) The characterization of first motor 7 acting as a motor in paragraph 0010 seems inconsistent with the characterization of the first motor in paragraph 0011 "which exclusively functions as a generator"

b) The paragraph 0011 recitation "...when the generated energy is insufficient for the required energy, it uses battery energy stored in the first motor...".

It is considered how "battery energy" is stored in a "generator". As best understood, energy can only be "stored" in a battery and not a generator.

2) Lines 5 and 6 of page 7 are considered to be awkwardly worded and somewhat unclear.

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3) As best understood, paragraph 0047 is referring to Figure 1, based on the "discussion" that begins in paragraph 0043. However, paragraph 0047 recites "P2" and "P3" which cannot be located on Figure 1.

4) Similarly, paragraph 0048 refers to reference numeral 20, which cannot be located on Figure 1.

B) The following inconsistencies in nomenclature were noted:

1) Paragraph 0048 recites both "...20...flexible connection..." and "shaft 20".

To avoid confusion to the reader, and to facilitate identifying components by nomenclature in the claims, it is requested Applicant use consistent nomenclature for the same reference number throughout the specification.

### ***Claim Objections***

6. Claim 17 is objected to because of the following:

A) It is believed that wording would be improved if the word "which" is inserted before the word "is" on the penultimate line of claim 17.

### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 9-13, 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicants regard as their invention.

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A) Claim 9 recites the limitation "the cases" in line 1. There is insufficient antecedent basis for this limitation in the claim.

B) Claim 18 recites "output of the internal combustion engine is output to an output portion by controlling the first electric motor".

This recited phrase is considered unclear based upon the following "supporting portions" of the disclosure:

1) Paragraph 0010 recites "...the first motor is controlled for step-less adjustment in the output torque and rotation which goes to the output axis 16...".

2) Paragraph 0011 then recites "note that the second motor 10 uses electrical energy generated in the first motor 7, and additionally, when the generated energy is insufficient for the required energy, it uses battery energy stored in the first motor, which exclusively functions as a generator...".

The above recitations are considered unclear and contradictory due to the following:

a) The characterization of first motor 7 acting as a motor in paragraph 0010 seems inconsistent with the characterization of the first motor in paragraph 0011 "which exclusively functions as a generator". It is unclear how a generator, and not a motor can "control" output torque", since, as best understood, only a "motor" outputs torque, while a generator converts torque into electrical energy.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Kashiwase, US Patent 6,146,302.

Kashiwase teaches a hybrid drive system (Figure 17) which transmits output from an internal combustion engine (1) to an output portion (8) and inputs output from a second electric motor (4) to the output portion, the hybrid drive system comprising:

a first electric motor (2);

a power distribution planetary gear (3), the power distribution planetary gear having a first rotation element (3a) to which output from the internal combustion engine is transmitted, a second rotation element (3c) that is operatively linked with the first electric motor, and a third rotation element (3b) that is operatively linked with the output portion; and a transmission (5) interposed between the second electric motor and the output portion.

11. Claims 1, 16 and 17 are rejected under 35 U.S.C. 102(a) as being anticipated by German Patent DE 20117410.

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DE 20117410 teaches a hybrid drive system (Figure 1) which transmits output from an internal combustion engine (E) to an output portion (A) and inputs output from a second electric motor (6) to the output portion, the hybrid drive system comprising:

a first electric motor (5);

a power distribution planetary gear (12), the power distribution planetary gear having a first rotation element (11) to which output from the internal combustion engine is transmitted, a second rotation element (16) that is operatively linked with the first electric motor, and a third rotation element (21) that is operatively linked with the output portion; and a transmission (22) interposed between the second electric motor and the output portion.

### ***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwase, US Patent 6,146,302, in view of Frank, US Patent 5,842,534.

Kashiwase teaches a vehicle, comprising:

an internal combustion engine (1);

a drive wheel (9); and



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a hybrid drive system (Figure 17), wherein the hybrid drive system has a first electric motor (2), a power distribution planetary gear (3), a second electric motor and a transmission (5), and in the power distribution planetary gear, output of the internal combustion engine is output to an output portion (8).

Kashiwase teaches output of the second electric motor is input to the output portion by a transmission, the output portion is operatively linked with the drive wheel. However, Kashiwase fails to teach the transmission has "plurality of steps". Kashiwase instead teaches a Continuously Variable Transmission (CVT) in which there are no "steps"

However, Frank teaches a vehicle comprising a hybrid drive system including a multi-speed, or step transmission (18) between a motor (12) and an output portion (20). A multi-speed transmission is advantageous over a CVT transmission in that while a CVT transmission has no "steps" or gearing which would lead to greater fuel economy, the CVT transmission is a relatively "young technology" as opposed to multi-speed, or step transmissions which is a "mature technology" having been around for many decades. Due to this, reliability can be considered to be greater and cost less with the multi-step transmission of Frank.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the multi-step transmission in lieu of the CVT transmission in the vehicle of Kashiwase.

14. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwase, US Patent 6,146,302, in view of Frank, US Patent 5,842,534.

Kashiwase teaches output of the second electric motor is input to the output portion by a transmission, the output portion is operatively linked with the drive wheel (Figure 17). However, Kashiwase fails to teach the transmission has "plurality of steps". Kashiwase instead teaches a Continuously Variable Transmission (CVT) in which there are no "steps"

However, Frank teaches a vehicle comprising a hybrid drive system including a multi-speed, or step transmission (18) between a motor (12) and an output portion (20). A multi-speed transmission is advantageous over a CVT transmission in that while a CVT transmission has no "steps" or gearing which would lead to greater fuel economy, the CVT transmission is a relatively "young technology" as opposed to multi-speed, or step transmissions which is a "mature technology" having been around for many decades. Due to this reliability can be considered to be greater and cost less with the multi-step transmission of Frank.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the multi-step transmission in lieu of the CVT transmission in the vehicle of Kashiwase.

Regarding claim 3, the Examiner takes Official Notice that multi-speed, or step transmissions, such as taught by Frank have several mating pinions and gears which will change wheel speed relative to engine speed. This may be seen in any transmission shop, or on the Internet. When "downshifting", deceleration occurs.

Regarding claims 4 and 5, see Figure 17 of Kashiwase.

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15. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwase, US Patent 6,146,302 and Frank, US Patent 5,842,534, as applied to claim 4, and further in view of Hayabuchi, et al, US Patent 6,558,287.

The combination vehicle of Kashiwase fails to teach the internal structure of the transmission of Frank.

However, Hayabuchi teaches an automatic transmission having a planetary gear set including four rotation elements, the planetary gear set being of the Ravigneaux type (first paragraph of column 3). A planetary gear unit having 4 rotation elements of the Ravigneaux type is advantageous in that the four rotation elements afford more "speed steps", while the Ravigneaux design is very compact, requiring less installation space.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the transmission of the combination vehicle of Kashiwase include a planetary gear set with four rotation elements of the Ravigneaux type.

Regarding claim 8, see B-1 and B-2 of Hayabachi.

***Allowable Subject Matter***

16. Claims 9-13 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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17. Claims 14 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A) Morisawa, et al, Nita, et al, Takano, et al, Kraska, et al, Coates, et al, Stridsberg, Raftari, et al, McGee, et al, Syed, et al – teach hybrid drive systems

B) Martin, et al – teaches an eight speed transmission

19. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Bryan Fischmann whose telephone number is (571) 272-6694. The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.

If attempts to reach the Examiner by telephone are unsuccessful, the examiner's supervisor, Chris Ellis, can be reached on (571) 272-6914. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 6-25-5  
**BRYAN FISCHMANN**  
**PRIMARY EXAMINER**